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| EXAMINER |
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AHMED, SHAMIM

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| ART UNIT | PAPER NUMBER |
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1765

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,826

Applicant(s)

BERNARDS ET AL.

Examiner

Shamim Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/5/05 have been fully considered but they are not persuasive. Applicants argue that Nakagawa's benzotriazole is a five membered aromatic fused N-heterocyclic compound but not a coating promoter and also does not suggest to use the compound as a coating promoter.
2. In response, examiner states that the argument is not persuasive because Nakagawa may be does not called benzotriazole is a coating promoter but teaches use of such compound for increasing/promoting adhesion between copper surface and resin in the manufacturing of printed circuit board (col.1, lines 65-col.2, lines 1 and also see the rejection).

Additionally, such provision would have been encouraged by Nakagawa's teaching that such compound promotes the very type of adhesion to copper desired by Bayes.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bayes et al (6,054,061) in view of Nakagawa et al (6,106,899) and Wolski et al (5,447,619).

Bayes et al disclose a process for preparing roughened copper surface of a copper-clad laminate, wherein the copper surface is contacted with an adhesion promoting composition including a sulfuric acid as claimed pH adjuster, hydrogen peroxide, and benzotriazole (so called 1-H benzotriazole which resembles a topography modifier (col.4, line 61-col.5, line 32 and examples 1-3 at col.7).

Bayes et al also teach that the adhesion promotion composition includes one or more of a triazole, tetrazole or imidazole, wherein triazole and tetrazole resembles the claimed topography modifier and uniformity enhancer, respectively (col.5, lines 27-30).

Bayes et al do not explicitly teach the introduction of a coating promoter, which is a 5-membered aromatic fused N heterocyclic compound.

However, Nakagawa et al teach a method of bonding copper surface with dielectric (resin) material, wherein the copper surface is treated using a derivative of aminotriazole or aminotriazole derivatives, which resembles with the claimed coating promoter and this aminotriazole or aminotriazole derivatives may be used either

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individually or in combinations of two or more in order to improve the copper surface for adhesion for subsequent processing in the manufacturing of printed circuit board ((col.1, lines 6-10,col.2, lines 2-3 ,col.3, lines 38-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to combine the teaching of Nakagawa et al's teaching into Bayes et al's process for increasing the adhesion capability of the treated copper surface with excellent thermal resistance and as well as moisture resistance as taught by Nakagawa et al.

Bayes et al teach that the copper surface is cleaned by chemical cleaning prior to contact with the adhesion promoter (col.6, lines 14-16).

Modified Bayes et al fail to teach the chemical cleaning is performed by applying alkaline solution.

However, Wolski et al (5,447,619) teach that copper surface is cleaned by soaking alkaline cleaning solution for removing stainproof layer from the copper surface in order to have a cleaner surface (col.10, lines 3-11).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to combine Wolski et al's teaching into modified Bayes et al's process for achieving a cleaner surface prior to the roughening process that is essential for bonding capability of the copper surface as taught by Wolski et al.

As to claims 2 and 4, modified Bayes et al do not explicitly teach that the composition includes a uniformity enhancer, wherein the uniformity enhancer.

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However, Nakagawa et al also teach that the use of a mixture of derivatives of aminotetrazole, which resemble as the uniformity enhancer and derivatives of aminotriazole enables the provision of copper surfaces with excellent thermal resistance and as well as moisture resistance (col.3, lines 32-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to combine the teaching of Nakagawa et al's teaching into Bayes et al's process for increasing the adhesion capability of the treated copper surface with excellent thermal resistance and as well as moisture resistance as taught by Nakagawa et al.

As to claims 7-8, Bayes et al also teach that unsubstituted and substituted triazoles and benzotriazoles are preferred and suitable substituent may be an alkyl group, which reads on the general formula (col.5, lines 28-32).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bayes et al (6,054,061) in view of Nakagawa et al (6,106,899) and Wolski et al (5,447,619) as applied to claims 1-7 above, and further in view of McKeever (5,962,190).

Modified Bayes et al discusses in the paragraph 5 above, wherein Bayes et al teach benzotriazoles and their derivatives can be used in the adhesion promoting composition (specially col.5, lines 28-30).

Modified Bayes et al fail to teach the composition may include 1-hydroxybenzotriazole.

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However, McKeever teaches heterocyclic compound such as benzotriazole or 1-hydroxybenzotriazole and the like can be used to improve adhesion capability of a copper surface (col.9, lines 49-59).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to combine McKeever's teaching into modified Bayes et al's process because both the benzotriazole and 1-hydroxybenzotriazole are functionally equivalent in order to improve adhesion capability of copper as taught by McKeever.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-7 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2,5 of copending Application No. 10/028,955 in view of Nakagawa et al (6,106,899) and Wolski et al (5,447,619).

The co-pending application differs from the instant application is that the additional introduction of a coating promoter of a benzotriazole derivative.

However, Nakagawa et al teach a method of bonding copper surface with dielectric (resin) material, wherein the copper surface is treated using a derivative of aminotriazole or aminotriazole derivatives, which resembles with the claimed coating promoter and this aminotriazole or aminotriazole derivatives may be used either individually or in combinations of two or more in order to improve the copper surface for adhesion for subsequent processing in the manufacturing of printed circuit board (col.1, lines 6-10,col.2, lines 2-3 ,col.3, lines 38-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to combine the teaching of Nakagawa et al's teaching into the process of co-pending application for increasing the adhesion capability of the treated copper surface with excellent thermal resistance and as well as moisture resistance as taught by Nakagawa et al.

Modified co-pending application fail to teach the copper surface is cleaned by applying alkaline solution.

However, Wolski et al (5,447,619) teach that copper surface is cleaned by soaking alkaline cleaning solution for removing stainproof layer from the copper surface in order to have a cleaner surface (col.10, lines 3-11).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to combine Wolski et al's teaching into modified the modified process of co-pending application for achieving a cleaner surface prior to the roughening process that is essential for bonding capability of the copper surface as taught by Wolski et al.

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This is a provisional obviousness-type double patenting rejection.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shamim Ahmed
Primary Examiner
Art Unit 1765

SA
December 22, 2005